US EPA Mussel Toxicity Workshop

August 23-24, 2005

Chicago, Illinois

Welcome!

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Acknowledgments

- **EPA Region 5-Host:**
  - Brian Thompson
  - David Pfeifer
  - Ed Hammer
  - Rob Pepin
- **EPA ORD:**
  - Chuck Stephan
- **EPA HQ:**
  - Charlie Delos
- **All presenters**

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Purpose

- To discuss the science of mussel toxicity testing by sharing the latest scientific information and experiences
- To share as much scientific information as possible
- To have open discussions of the science

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Background

- **Ammonia criteria re-evaluation:**
  - Data call July 2004
  - New data requested
  - Mussel toxicity information specified
  - Numerous questions, comments and concerns submitted regarding mussel toxicity testing
  - No decision yet made by EPA

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Background

- **Comments from data call:**
  - 15 sets of comments
  - 50 pages of materials
  - Policy and Programmatic
  - Scientific

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Background

- **Key Policy/Programmatic comments from data call:**
  - Use of data on E&T species in standards development is a major policy shift
  - States want to be involved in any programmatic change
  - It is important that water quality standards be protective of E&T species
  - A moratorium on using mussel toxicity testing information in water quality standards would be prudent
  - Consideration of changes to the 304(a) ammonia criteria should be delayed
  - The EPA criteria derivation guidelines should be revised to include E&T species if such are to be included
  - A site-specific exclusion of mussel data should be allowed

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Background

- **Key Scientific comments from data call:**
  - The science of mussel toxicity testing is uncertain
  - The science must be thoroughly explored
  - Methodologies must be peer reviewed
  - Unionid mussels have unique life histories, unlike other organisms used in toxicity testing
  - Unionid mussel toxicity testing is very complex
  - Propagation and culturing of mussel glochidia and juveniles is very difficult
  - Control mortality is high in mussel toxicity testing
  - What is the most appropriate type of test?
  - Are lab results representative of toxicity effects in the environment
  - Only eastern mussel species have been tested

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The Workshop

- **Workshop to address scientific issues**
  - Announced over past 10 months
  - Region 5 host
  - Web announcement
  - Mussel experts identified and invited
  - Other papers/presenters included
  - Format to include scientific presentations and discussion sessions

Workshop Focus

- **Key questions and issues for workshop:**
  - Is mussel toxicity testing a scientifically acceptable procedure that generates reliable results?
    - propagation, culturing
    - adults, juveniles or glochidia
    - acute, chronic
    - reproducibility, regional differences
    - precision, sensitivity
  - What is the relationship between laboratory toxicity testing and field observations?
  - Are there scientific reasons why mussel toxicity testing can not be used for criteria development?

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Ground Rules

- Discuss the science of mussel toxicity testing—not policy
- Not here to discuss ammonia criteria or any other specific standard
- Presenters are expressing their knowledge and professional opinions, not those of EPA's
- EPA is here to gather as much information as possible
- Need to adhere to time allocated for presentations and discussions

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Outcomes

- EPA will prepare a summary of the information presented and make it available
- EPA will factor this information into making a final decision about the ammonia criteria
- Results may be pertinent to other criteria
- Information may be applied to EPA's criteria methodology revisions

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EPA Key Contacts

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